



December 4, 2012

Ms. Shari Kolak  
Work Assignment Manager  
U.S. Environmental Protection Agency (EPA)  
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**Subject: Scoping Summary - Proposed Phase II Field Activities  
East Troy Contaminated Aquifer (ETCA) Site  
Remedial Investigation/Feasibility Study (RI/FS); Troy, Ohio  
Work Assignment No. 145-RICO-B5EN**

Dear Ms. Kolak:

SulTRAC is submitting this summary of proposed field activities for Phase II of the RI at the ETCA site. The proposed activities and sampling locations are designed to address remaining data gaps with regard to the objectives of the RI specified in SulTRAC's approved site specific Sampling and Analysis Plan (SAP) dated August 2010 and the SAP Addendum dated November 2011. The data gaps are based on interpretation of the results of field sampling efforts completed during Phase I of the RI, which was completed in the summer of 2012.

This scoping summary provides brief summaries of the Phase I data collection activities completed, with general observations of results from each activity; a summary of key findings based on overall assessment of the data resulting from all activities; a summary of data gaps remaining with regard to project objectives; and a summary of proposed activities to be completed in Phase II to address these data gaps and provide sufficient data to support the RI/FS reports. Figures summarizing the completed and proposed sampling locations are attached. Detailed information regarding field and analytical procedures used for Phase I and proposed for Phase II can be found in the SAP and SAP Addendum

## **I. Summary of Phase I Activities:**

### **A. Baseline Groundwater Sampling of Existing Wells - Completed August 2010**

- 13 Ohio EPA monitoring wells and 6 City of Troy monitoring wells were sampled and analyzed for VOCs; a select group of wells were analyzed for full Target Compound List (TCL) and Target Analyte List (TAL) parameters. Analysis was conducted by the EPA Contract Laboratory Program (CLP).
- Tetrachloroethene (PCE) was detected in shallow groundwater at concentrations as high as 700-800 micrograms per liter (ug/L) or parts per billion at hot spots – Walnut near Main and E. Franklin, downgradient/ southeast from Clay Street.
- PCE, trichloroethene (TCE) and cis-1,2-dichloroethene (cDCE) were also detected in wells located along East Water Street.
- Chlorinated VOCs were not detected in any of the deep (City of Troy) monitoring wells.

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- Chlorinated VOCs were not detected in any of the monitoring wells east of the GMR.
- Concentrations of other TCL/TAL parameters did not indicate the presence of non-VOC organics or metals at concentrations of concern.

***B. Split samples with Kimberly Clark on Spinnaker site; quarterly sample data from KC – December 2009 to present***

- PCE is typically detected in the wells near Water Street and near the GMR (KMW-15); the wells near Water Street often contain low concentrations of TCE and/or cDCE.
- cDCE is frequently detected in well KMW-10, located at the upgradient/western corner of the Spinnaker west parking lot. The concentrations at which cDCE is typically found in this well are several times higher than the total chlorinated VOC concentrations in the other monitoring wells located nearby, suggesting proximity to another primary or secondary source area of TCE or cDCE (possibly as a degradation product of TCE) in this vicinity
- Total chlorinated VOC concentrations in the remainder of the monitoring wells in the Spinnaker western parking lot area are lower than those in KMW-10 indicating that concentrations decrease with distance downgradient.

***C. Surface Water and Sediment Sampling – Great Miami River – September 2010***

- Four locations were selected based on available data at the time regarding plume boundaries. Each location included collection of surface water and sediment samples for VOC analysis through the EPA CLP.
- The background and farthest downstream location (downstream end of the Spinnaker site) were analyzed for full TCL/TAL parameters through CLP
- No chlorinated VOCs were detected in the samples; results of the full TCL/TAL analyses indicated no other likely site-related impacts to the GMR.

***D. Sewer Camera Survey – October-November 2011***

- City of Troy crews used a robotic crawler-mounted camera to view sanitary sewer on East Franklin Street between Walnut and Counts and on Walnut Street between Franklin and East Main.
- Manholes with brick and tile bottoms are located at the “hot spot” area at Clay and Franklin. Also, two joints are located in this area where the vitrified clay sewer pipe changes to steel where it passes under railroad tracks at Clay Street.
- The water table was at about 11-12 feet bgs at the time of the survey, corresponding with the sewer depth in some locations. For these reasons, transport of PCE in wastewater from the dry cleaner facility, with subsequent release at the manholes or joints, could have contributed to the hot spot at Clay and Franklin.

***E. Geoprobe Groundwater Screening Samples, December 2011***

- Completed 5 borings to the top of the water table and collected screening level groundwater samples to estimate plume boundaries along East Franklin Street and support decisions regarding monitoring well placement; groundwater samples were analyzed for VOCs by a local laboratory.
- Data indicated that the Residential Area PCE Plume extends several blocks farther east than was indicated by older data.

- The data also indicated that the lateral edges of the plume needed to be investigated through placement of wells in the vicinity of Union Street.

***F. Vapor Intrusion Sampling, January 2012***

- Seventeen homes and two commercial business locations were tested for indoor air VOCs (and sub-slab vapor VOCs if they had a basement with a slab) following Ohio EPA and USEPA guidance. Samples were analyzed for VOCs using Methods TO-15 by Air Toxics, a subcontracted laboratory.
- Data from seven homes and one commercial property exceeded May 2011 Ohio Department of Health (ODH) screening levels for PCE (of these, data from six homes and one commercial locations exceeded current April 2012 ODH levels).
- The highest concentrations of PCE were in the basement of a commercial structure on East Main located directly downgradient from where the primary suspected PCE source was located.

***G. Vertical Aquifer Sampling (VAS) and Monitoring Well Installation February-March 2012***

- Installed 11 shallow (water table), 7 deep and 1 “intermediate” depth monitoring wells
- Completed elevation survey tying all wells together
- Collected VAS (groundwater) samples which were analyzed at local lab as screening samples; most came back with no detections of VOCs
- Samples at the EPA-107 cluster (adjacent to shallow well OEPA-11 near the primary suspected Residential Area PCE Plume source area) indicated a heavily contaminated “intermediate” zone with a strong odor, between two clay layers, at about 45-55 feet below ground surface (bgs).
- Analyzed a soil sample of the clay at the base of the uppermost (heavily contaminated) zone at well EPA-107-I – no VOCs were detected. This suggests that PCE likely migrated vertically into this zone directly under the upgradient source area, which is located directly across Walnut Street from this well cluster.
- Chlorinated VOCs were not detected in other deep VAS samples

***H. Comprehensive Groundwater Sampling – April-May 2012***

- Included 41 wells – all pre-existing Ohio EPA and City of Troy monitoring wells (except OEPA-5 due to poor condition and also as this data point has been replaced by wells farther east); two Kimberly Clark wells at Spinnaker East End, two MCD piezometers and 19 new monitoring wells installed by USEPA.
- Measured groundwater elevations in all wells.
- The data indicated that the Residential PCE plume extends southeastward well beyond Counts Street.
- The data indicated that the Water Street PCE plume begins on the Hobart property.
- The data indicated that the two plumes eventually seem to merge in the vicinity of Counts Street and that PCE extends southeastward from that point to the GMR in the area east of Williams Street.
- The intermediate zone at the EPA-107 well cluster (near the Residential PCE plume source area) had high concentrations of chlorinated VOCs – primarily PCE but also lower concentrations of TCE.

- A sample from the deep well monitoring the underlying (deep) zone at the EPA-107 cluster (85 feet bgs) had TCE at very low concentrations 0.20 ug/L).
- TCE was detected at low concentrations (0.17 ug/L) in samples from deep well EPA 112D. However a split, and also a subsequent resample from this well, collected by Kimberly Clark during the summer 2012 quarterly monitoring, did not contain TCE.
- Groundwater flow in the shallow zone appeared to be roughly southeast, parallel to East Franklin Street and East Water Street (see Figure 2).
- Groundwater flow in deep wells was southeast and in the area southeast of Counts Street appeared to be heavily influenced by pumping in the wellfield east of the GMR (see Figure 3).

***I. Soil Sampling and Shallow Groundwater Screening Samples – May-June 2012***

- 36 borings were completed using a Geoprobe sampler.
- Soil samples were collected at most locations for VOCs by Method 5035 and for full TCL/TAL parameters at 10 percent of the locations; groundwater samples were also collected from some borings and analyzed for VOCs, as screening level samples to supplement the data from the monitoring well network regarding plume boundaries and source locations.
- KC representatives collected split samples of all soil and groundwater samples collected on the Spinnaker and Hobart properties.
- The soil data confirmed the presence of significant concentrations of PCE, TCE, and 1,1,2-Trichloroethane (1,2-TCA) in shallow soil at Hobart (see Figure 5). These results correlate with the results of the split samples analyzed by KC, although concentrations of each compound varied between the splits.
- The groundwater data indicated no other VOCs in shallow groundwater directly upgradient from the Hobart property. This observation, combined with the results of soil sampling data, further indicate that the Water Street PCE plume originates on the Hobart property.
- The soil data also confirmed the presence of significant concentrations of TCE and cDCE, in shallow soils on the Spinnaker property in the vicinity of monitoring well KMW-10. These results correlate with the results of the split samples analyzed by KC, although concentrations of each compound varied between the splits.
- The groundwater screening data did not indicate the presence of other potential source areas investigated: (1) a former dry cleaner at the corner of Race and Canal (2) a reported former lawn mower repair and machine shop located along Clay Street between Franklin and Canal Streets or (3) the auto parts store at Clay and East Main.
- Several sets of CLP soil data were affected by calibration issues in the Method 5035 analysis, resulting in elevated quantitation limits in some cases and several sets of results being qualified as unusable; however, impacts to the overall data set were minimal.

## **II. SUMMARY OF KEY OBSERVATIONS FROM EVALUATION OF PHASE I DATA**

- A. The groundwater data confirm that the Residential PCE Plume originates in the area along East Main Street between Walnut Street and the town square supporting that the former One-Hour Martinizing dry cleaning store in this area was the likely source (see Figure 5)
- B. The exact location of the former dry cleaner and the mechanism by which PCE entered the subsurface is yet unknown; the location is described by various long-time residents as having either been located where the First Presbyterian church addition now stands at Walnut and East Main, and by others as being located in still-standing buildings immediately west of the church addition.
- C. Groundwater contamination in the vicinity of the Residential PCE Plume source area was detected at three vertical horizons (upper, intermediate and lower) separated by clay layers, with the highest concentrations in the “intermediate” sand and gravel layer at approximately 50 feet bgs. Only trace concentrations of TCE were detected in the underlying deep sand and gravel zone indicating that significant concentrations of chlorinated VOCs are not presently migrating downward from the overlying contaminated zones in this area.
- D. Based on comparison of shallow groundwater PCE concentrations, a second minor source of PCE contamination may have been located in the block between Crawford and Union Streets, along East Main. Potential sources in this area include a former dry cleaner at Union and East Main (Waltz Cleaners) and a print shop (Western Graphics) located at Crawford and East Main. However the contamination observed in this area may also be related to the source near Walnut and Main. No other potential source areas for the Residential Area PCE plume have been identified. Screening groundwater samples collected using a Geoprobe identified no indication of sources in the vicinity of the fire station on Race Street, an unused shed reportedly used for mower repairs on Clay Street, or the auto parts store at Clay and East Main.
- E. The Residential PCE plume migration path appears to have either followed a narrow corridor from the source area toward the intersection of Clay and East Franklin Street and/or was exacerbated by releases from the sanitary sewer in the vicinity of the rail crossing and adjacent manholes at Clay and East Franklin, then fanned out and eventually merged with the PCE contamination originating from the East Water Street area (See Item G below). The highest groundwater concentrations of VOCs appear to be limited to a relatively narrow corridor along East Franklin Street and within approximately 100 feet on either side.
- F. The Residential PCE plume extends downgradient/southeast to at least somewhere between Ellis and Morehead Streets, slightly west of where East Main and East Franklin meet; this observation is based on “nondetect” results for VOCs in a grab groundwater sample collected from a Geoprobe boring.
- G. Groundwater data collected to date indicate that the Water Street PCE plume originates on the Hobart property and this plume also contains TCE and cDCE. This plume eventually appears to merge with the Residential PCE plume and continues downgradient/southeast to

the GMR somewhere east/southeast of the point where Williams Street dead-ends at the levee.

- H. PCE, TCE, 1,1,2-TCA and other VOCs were detected in shallow soil samples on the Hobart property (see Figure 5). The soil sample location with the highest concentrations of VOCs was adjacent to Hobart's loading dock adjacent to the building, in the back, upgradient from and lateral to the vapor degreaser and was from approximately 2-4 feet bgs. The contamination may be related to the old railroad spur or manufacturing activities at Hobart.
- I. High concentrations of TCE and cDCE were also found in a shallow subsurface soil sample (approximately 2-4 feet bgs) collected in the western Spinnaker parking lot area near monitoring well KMW-10. Significant concentrations of PCE were not found at this location. Groundwater samples from KMW-10 typically contains significant concentrations of cDCE. This observation suggests a source or secondary source of cDCE in the vicinity of well KMW-10. The cDCE may be originating as a degradation product of TCE.
- J. Logs of retrieved soil cores during the Phase I deep well/ VAS drilling program indicated the presence of more interbedded silt and clay layers within the sand and gravel than were encountered at borings for previously installed City of Troy monitoring wells. In addition, vertical gradients observed at paired shallow and deep well clusters ranged from non-existent to slight. At one location (EPA-107/OEPA-11) the highest contaminant concentrations were encountered in a zone beneath a dense overlying clay. These observations support that the clay layers should not be considered as continuous confining layers. However, data from the deep monitoring wells do not indicate that significant concentrations of chlorinated VOCs are migrating downward to the deep portion of the aquifer at this time.
- K. Target chlorinated VOCs were detected in only two of the deep monitoring wells, and at very low/trace levels. TCE was detected in both EPA-107D (near a source area) and EPA-112D, both at similar, very low concentrations. Split samples from well EPA-112D collected by KC did not contain TCE.
- L. The sewer system has locations where contamination, if present in wastewater, could have been released and the most likely spots appear to be the manholes at Clay and Franklin, which have tile and brick bottoms, or where the steel pipe that passes under the railroad crossing joins the clay sewer pipe. Investigations completed to date have found no evidence of other sources of PCE in this area.
- M. The area of most significant concern for VI (see Figure 6) appears to be the area along East Franklin between Mulberry and Counts and East Main between Walnut and Mulberry, as well as adjacent portions of Walnut, Mulberry, Clay, Crawford, Union and Oak Streets; and the residential area along East Water Street.
- N. Investigations completed to data have not indicated the presence of contaminant sources east of the GMR.

### III. SUMMARY OF DATA GAPS

#### A. Extent of Groundwater Contamination

##### 1) *Shallow zone*

- The downgradient extent of the Residential Area PCE plume along East Franklin Street has not been confirmed with data from a permanent monitoring well.
- A shallow/water table well is needed next to EPA-111 to confirm rule out that the cDCE detected in Spinnaker well KMW-10 is originating at an upgradient source (Hobart).
- A permanent well is needed on Mulberry Street, near the exit for the Police Station Parking lot, to assess the migration pathway of PCE from the source area at Walnut and Main to the hot spot area located between Clay and Crawford. That is, to confirm whether there is a continuous area of high groundwater PCE concentrations from the source area all to the Clay/Franklin “hot spot” or if the intervening area exhibits lower PCE concentrations, indicating transport and release via the sewer.
- An additional permanent well is needed to confirm the downgradient/southeast extent of contamination along East Main Street.
- A permanent well should be installed along Crawford Street, approximately mid-way between OEPA-6 and OEPA-2 to help determine if the contamination found downgradient at well EPA-103S is originating from the main Residential PCE Plume Source area or a second source.
- An additional permanent background monitoring well is needed more directly upgradient from upgradient from well EPA-110S to document the point of origin of the Water Street PCE plume.
- Supplemental data, collected using a Geoprobe, is needed to fill in some areas between permanent wells to provide additional confidence regarding the lateral boundary of the plume in the area northeast of East Main, between Walnut and Mulberry; the lateral boundary of the Residential Area PCE Plume on the cross streets in the area between East Franklin and East Canal Streets; and, PCE concentrations in the area between East Franklin and East Main in the area southeast/downgradient from Union Street.

##### 2) *Intermediate Zone*

- The potential horizontal extent of migration of high concentrations of PCE (as encountered in samples from well 107I) in this zone needs to be evaluated to determine the potential extent of the area that may be subject to remedial considerations

##### 3) *Deep Zone*

- Additional monitoring data from the existing well network is needed; no additional installation of deep wells is recommended at this time.

## **B. Source Area Confirmation**

### **1) *Residential Area PCE Plume***

- The exact original location of the former dry cleaner needs to be confirmed through review of Sanborn Maps and/or additional interviews
- The source and mechanism by which, as well as exact locations within the original source where PCE was released to the subsurface are not confirmed, so the potential for a residual source that has been covered up – such as a sump – is unconfirmed.
- The nature of the slab/structure beneath the wood flooring in the basement at 102 East Main is unknown
- The potential for a secondary source in one the former dry cleaning or print shop businesses along East Main between Crawford and Union Streets is suggested by groundwater data but is unknown

### **2) *Water Street Area***

- The horizontal extent of shallow soil contamination detected in the area between East Water Street and the GMR, including both the Spinnaker and Hobart properties is unknown
- Whether the soil contamination observed on the Hobart and Spinnaker properties originated from separate activities at each location or is possibly related to a single source – such as spills along the former rail siding, is unknown
- Based on the soil data from Spinnaker and Hobart, and the topography of the residential yards that border these sites relative to the former rail spur, the potential presence of soil contamination on the residential properties that lay between the Hobart and Spinnaker properties, is unknown
- The upper portion of the water bearing zone at well EPA-111 was found to be clay; for this reason the monitoring well was installed slightly deeper than nearby wells, at 30 feet bgs. The potential presence of VOCs in the water bearing portion of the overlying clay, at a depth similar to Spinnaker well KMW-10, needs to be determined.

### **3) *Area East of the GMR***

- To date, no VOCs have been detected in the existing network of two deep and 3 shallow monitoring wells located east of the GMR, upgradient from the East Wellfield. No data gaps appear to exist at this time.

## **C. Vapor Intrusion**

- 1) The highest priority area for VI monitoring, based on past VI data and the current known extent of PCE concentrations in groundwater, is indicated on Figure 6. (This area is based on the area in which groundwater concentrations of PCE exceed approximately 25 ug/L as well as presence of other VOCs and past VI monitoring data). Within this area, VI monitoring has never been conducted at approximately 104 structures. The owners of many of these locations were either non-responsive or denied access to EPA in 2006-2007 or during Phase I of the RI in 2012; however it is possible that some of these property owners may now consent to sampling or in some cases ownership may have changed. Approximately 94 additional

structures at which VI monitoring has not been conducted are located outside of the highest priority area but still within the estimated boundaries of the shallow groundwater PCE plumes (all locations where PCE > nondetect).

- 2) At most of the 2006-2007 locations sampled by EPA during the Time Critical Removal Action (TCRA) at which sub-slab vapor samples were collected, only a single sample port was installed. Current EPA and Ohio EPA guidance recommends at least two per slab.
- 3) In a few instances the reporting limits for TCE during the 2006-2007 sampling effort exceeded current (2012) Ohio Department of Health Screening Levels so retesting may be warranted.
- 4) Two locations sampled during Phase I were residences where vapor abatement systems were installed in 2007; however no official followup testing (or confirmation that the systems are still operating) has been conducted at the remaining locations at which abatement systems were installed in 2007.

**D. Surface Water and Sediment**

- Groundwater data, collected after the surface water and sediment samples were collected in 2010, indicated that PCE extends farther downgradient than previously thought and could potentially discharge to the GMR at locations downstream from the lowermost 2010 surface water/sampling point. However, the stream is very straight and channelized, with the west bank lined with concrete throughout this area. The channelization prevents accumulation of significant amounts of sediment in this area with the stream bottom highly scoured and rocky. For this reason it is unlikely that significant concentrations of VOCs are likely to accumulate in sediments in the site area.

**IV. PROPOSED PHASE II FIELD INVESTIGATION SCOPE**

Note that all field investigation activities will be conducted in accordance with the approved SAP dated August 2010 and the SAP Addendum dated November 2011.

**A. Extent of Groundwater Contamination**

The drilling and well installation techniques will be as described in the approved SAP dated July 2010. Sonic drilling methods will be used. Continuous soil cores will be collected and select samples may be selected for analyses of parameters that may support future decisionmaking regarding remedial alternatives such as in-situ chemical oxidation and monitored natural attenuation.

**1) Drilling and Well Installation - Shallow zone – see locations on Figure 4.**

- Install one permanent monitoring well, using Rotosonic methods, at a depth of approximately 22 feet on the north side of East Franklin Street near Morehead Street to confirm the downgradient boundary of the residential area PCE plume
- Install a permanent well at a depth of approximately 22 feet near the corner of Williams and East Main to determine if PCE is present in groundwater in the area

between the current known locations of the Residential and Water Street PCE plumes.

- Install a shallow monitoring well screened across the top of the water table, next to EPA-111 to confirm where the cDCE detected in Spinnaker well KMW-10 originates
- Install a shallow well on Mulberry Street, at a depth of approximately 22 feet, near the exit for the Police Station Parking lot, to assess the migration path of PCE from the source area at Walnut and Main toward the hot spot area located between Clay and Crawford.
- Install a permanent background well at the terminus of Clay Street directly upgradient from well EPA-110S to confirm that the contamination originates on the Hobart Property.
- Install one additional shallow well on Crawford street directly upgradient from the Western Graphics Building to confirm plume geometry in this area
- Collect supplemental shallow groundwater data using a Geoprobe, from up to 9 locations, to fill in some areas between permanent wells to provide additional confidence regarding the lateral extent of the plumes and thus the areas of potential concern for VI issues. The samples will be considered “screening” level samples.

***TOTAL SCOPE – 6 permanent shallow wells installed using sonic drilling methods; 9 Geoprobe groundwater “screening level” samples***

2) ***Drilling and Well Installation - Intermediate Zone – see locations on Figure 4***

- Using a Rotosonic rig, install 3 to 4 “intermediate” depth monitoring wells at approximately 50 feet bgs to investigate the possible horizontal extent of the PCE and TCE contaminated “intermediate” zone encountered at well location EPA 107I. The wells would be installed at the following locations:
  - o Mulberry Street adjacent to the shallow well described above near the police station parking lot exit
  - o Clay Street, adjacent to monitoring well OEPA-7 (if the zone is observed on Mulberry Street)
  - o One location adjacent to shallow well OEPA-6 on Crawford Street
  - o One well adjacent to deep well 104D (to provide triangulation for measurement of water levels and flow direction)

For the intermediate depth wells, 8-inch temporary override casing, installed into the top of the clay layer that underlies the uppermost zone, will be used to prevent downward migration of contamination from above during drilling and well installation. It should be noted that the hydrogeologic zone that comprises the “intermediate” zone – a highly contaminated sand and gravel layer underlying a dense clay that separates the intermediate zone from the overlying zone - is known to not be present at all locations in the site area. For this reason, if it is not encountered at any of the selected locations during drilling, a permanent well will not be installed at that location. Instead a groundwater sample will be obtained from the 50-foot depth interval using the same techniques used for the Phase I VAS program and the hole will be abandoned.

***TOTAL SCOPE - Four 55-foot deep monitoring wells.***

**3) *Groundwater Sampling***

- Following completion of well installation activities, another round of groundwater samples will be collected. Several of the pre-RI wells may no longer be needed to provide data for this phase of the RI. For estimating purposes, this scoping summary assumes that 40 wells will be sampled and analyzed through the EPA CLP for VOCs.
- In addition, groundwater samples from select wells may be analyzed for various parameters that may provide data relevant to supporting preliminary evaluations of remedial alternatives, such as amenability to chemical oxidation treatment and monitored natural attenuation. These samples will be analyzed through a subcontracted laboratory.

***TOTAL SCOPE - Sample 40 monitoring wells with analysis for VOCs via EPA CLP; samples from select wells to be analyzed for various other parameters to support remedial alternatives.***

**B. Source Area Confirmation**

**1) *Residential Area PCE Plume***

- The exact original location of the former dry cleaner needs to be confirmed through review of Sanborn maps, local library and city directory resources and interviews
- If the structure that housed the dry cleaner was in fact not located where the First Presbyterian Church addition now stands, the structure that housed it likely remains in the area between the town square and the church addition. A detailed inspection of the building for sumps - possibly using ground penetrating radar, may be considered.
- The nature of the slab/structure beneath the wood flooring in the basement at 102 East Main should be determined.
- The potential for a secondary source in one the former dry cleaning or print shop businesses along East Main between Crawford and Union Streets should be investigated through collection of soil and groundwater samples using a direct push rig.

***TOTAL SCOPE – historic map review/interviews, building inspection (if warranted), possible ground penetrating radar survey (if warranted); approximately 2 soil borings with collection of soil and groundwater samples.***

**2) *Water Street Area***

- Additional borings (estimate 5) to a depth of 6 feet to further evaluate the horizontal and vertical extent of soil contamination on the Hobart Property
- Four soil borings (one per yard) in each of the residential properties between Hobart and Spinnaker to evaluate the potential presence of surface and subsurface soil contamination to a depth of 6 feet
- Delineation of the extent of contamination on the Spinnaker site in the vicinity of KMW-10 (4 borings to 6 feet bgs)

- A series of borings (estimate 3) in the extreme western portion of the Spinnaker parking lot (west of well KMW-15) to evaluate the potential presence of soil contamination along the former rail spur area.

At each boring soil samples will be collected for analysis for VOCs using EPA Method 5035. All soil samples will be analyzed through the EPA CLP.

***TOTAL SCOPE – 16 shallow borings, with collection of up to approximately 48 soil samples for VOC analysis via EPA Method 5035.***

### **C. Vapor Intrusion**

Vapor intrusion monitoring procedures will be completed following the techniques described in the approved SAP Addendum dated November 2011.

#### ***1) Phase I Locations***

- Phase II monitoring of most phase I VI locations (with the exception of several locations at which access was not granted or the owners could not schedule access) was completed in September 2012. For this reason, only the two locations where access could not be scheduled remain to be completed.

#### ***2) Previously Untested Locations***

- Approximately 104 structures at which VI monitoring has never been completed remain in the area overlying the highest observed PCE concentrations in groundwater at this site (see Figure 6). Many of these locations will be considered for monitoring and monitoring will be completed at those granting access. Locations in the vicinity of the Residential PCE Plume source area and those on East Franklin Street southeast of Clay Street will be given top priority.

***TOTAL SCOPE – Assumes VI monitoring (sub-slab and indoor air) at approximately 25 locations based on past response to EPA request for access.***

#### ***3) Re-testing of Locations Sampled During the 2006-2007 TCRA***

- Select locations at which VOCs were detected in sub-slab samples but were present at concentrations slightly below screening levels, will be resampled following current guidance which calls for at least two probes per slab. Approximately 20 of these locations exhibited detections of VOCs that were at least half the current ODH screening levels but were not high enough to warrant installation of a vapor abatement system at that time.
- Several locations where the reporting limits used in 2007 for TCE exceeded the current ODH screening levels and PCE was also present in sub-slab vapor or indoor air, will be retested.
- Indoor air samples will be collected at select locations where vapor abatement systems were installed in 2007.

***TOTAL SCOPE – Assumes VI monitoring (sub-slab and indoor air) at approximately 20 locations based on past response to requests for access.***

**D. Surface Water and Sediment**

- Groundwater data collected after the surface water and sediment samples were collected in 2010 indicated that PCE extends farther downgradient than previously thought and could potentially discharge to the GMR at locations downstream from the lowermost 2010 surface water/sampling point. For this reason, one additional surface water/sediment sample will be collected at the end of the channelized/concrete lined segment downstream from MCD piezometers T-13/T/14 and analyzed for VOCs by EPA CLP using EPA Method 8260. One additional set of background samples will also be collected. The samples will be collected concurrently with the groundwater samples.

***TOTAL SCOPE – 2 surface water and sediment samples to be analyzed for VOCs.***

If you have any questions regarding this submittal, please call me at (513) 564-8350.

Sincerely,



Guy Montfort  
SulTRAC Project Manager

Attachments (six)

cc: Parveen Vij, EPA Contracting Officer (letter only)  
Melinda Gould, SulTRAC Program Manager (letter only)  
File

## **ATTACHMENTS**

**(Six Figures)**